

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A chemical source vapor pressure control system comprising:

a ~~deposition~~ chemical source chamber, a chemical source holder within said chemical source chamber for holding ~~[[said]]~~ a solid or liquid chemical source, a chemical source heater, a source heater controller, and a deposition accumulation sensor, said heater controller electrically connected to said deposition accumulation sensor to control the heating of said source; ~~said system characterized by,~~ said temperature controlled deposition accumulation sensor located out of line-of sight with said chemical source while it is electrically connected to said heater controller; and

a sensor temperature control unit for controlling the temperature of said accumulation sensor to a temperature lower than substantially equal to the condensation temperature of the chemical source at the desired vapor pressure.

2. (Currently amended) A chemical source control system as in claim 1 wherein said ~~deposition source~~ chamber has chamber walls and further comprising a chamber wall temperature control system for maintaining said walls at a temperature that is sufficiently high to prevent condensation of said chemical source.

3. (Currently amended) The chemical source vapor pressure control system as in claim 1 and further characterized by a pressure gauge, a gas control valve, and a pressure controller connected between said gauge and said valve to control the total pressure within said ~~deposition source~~ chamber to a pressure higher than said controlled vapor pressure of said chemical source.

4. (Currently amended) The chemical source vapor pressure control system as in claim 1 and further characterized by a source of an etch gas connected to said gas control valve, and said sensor senses a condensable chemical which is an etching product.

5. (Previously presented) The chemical source vapor pressure control system as in claim 4 and characterized in that said chemical source is selected from the group consisting of Hf, Zr, Ru, RuO₂, Si, W, Mo, Co, Cu, Al, Os, OsO₂, Fe, Ta and combinations thereof; and said etching gas is selected from the group consisting of Cl₂, Cl₂/N₂, Cl₂/O₂/O₃, N₂/HF, N₂/ClF₃, CO, CO/N₂ and combinations thereof.

6. (Currently amended) The chemical source vapor pressure control system as in claim 1 wherein said vapor control system is part of an atomic layer deposition (ALD) system and further characterized by a pressure controlled reservoir; a shutoff valve in series fluidic communication between said pressure controlled reservoir and said ~~deposition source~~ chamber to substantially equalize the pressure between said ~~deposition source~~ chamber and said pressure controlled reservoir between successive ALD doses.

7. (Currently amended) The chemical source vapor pressure control system as in claim 1 wherein said source is applied for ALD and the capacity of said ~~deposition source~~ chamber is 20 times or more larger than the capacity required for a single ALD dose.

8. (Currently amended) A method for controlling the vapor pressure of a solid or liquid chemical source within a source space said method comprising:

sensing the accumulation of said chemical on [[an]] the sensing surface of an accumulation sensor; [[and]]

controlling the temperature of said chemical source depending on said sensed accumulation to control said vapor pressure; and

controlling the total pressure in said source space to be higher than said vapor pressure of said chemical by adding a non-condensable gas to said source space.

9. (Original) A method as in claim 8 wherein said temperature of said chemical source is controlled to maintain a minimal measurable condensation rate on said sensing surface.

10. (Previously presented) The method of claim 8 and further characterized by controlling the temperature of said sensor to determine the desired vapor pressure of said chemical.

Claim 11 (Canceled)

12. (Original) The method of claim 8 and further characterized by introducing an etching gas into said source space; and etching an elemental or compound target to produce said chemical.